

CLAIMS

What is claimed is:

- 1 1. A method for over-the-air (OTA) transfer of information to a mobile device
2 comprising:
3 identifying information relating to a storage location of an application
4 program;
5 composing a trigger message based on the identified information;
6 sending the trigger message to the mobile device, the trigger message
7 including a file retrieve command for initiating over-the-air (OTA) downloading of the
8 application program.
- 1 2. The method of claim 1 wherein the trigger message comprises a short wireless
2 message.
- 1 3. The method of claim 2 wherein the short wireless message comprises one of an
2 SMS (Short Messaging Service) message, an EMS (Enhanced Messaging Service)
3 message, an MMS (Multimedia Messaging Service) message, a Cell Broadcast message,
4 a USSD (Unstructured Supplementary Service Data) message and a message sent through
5 a wireless Internet connection.
- 1 4. The method of claim 1 wherein the file retrieve command comprises a File
2 Transfer Protocol (FTP) file transfer command.
- 1 5. The method of claim 1 wherein the file retrieve command comprises a
2 HyperText Transfer Protocol (HTTP) file transfer command.
- 1 6. The method of claim 1 wherein the storage location is identified in an
2 eXtensible Markup Language (XML) document.
- 1 7. The method of claim 1 wherein before identifying information, the method
2 further comprises receiving a request for the application program.
- 1 8. The method of claim 7 wherein identifying information relating to the storage
2 location comprises searching a database for the requested application program.
- 1 9. The method of claim 1 further comprising:
2 receiving the trigger message, at the mobile device;
3 parsing the received trigger message for the file retrieve command; and

4 executing the file retrieve command to initiate OTA downloading of the
5 requested application program.

1 10. A method for updating an application program in a mobile device, the method
2 comprising:

3 identifying information to be updated in the application program;

4 composing a short wireless message including embedded data for updating
5 the application program, the embedded data pertaining to the identified information; and

6 sending the composed short wireless message including embedded data to
7 the mobile device.

1 11. The method of claim 10 wherein the embedded data comprises:

2 a header identifying the short wireless message as including one or more
3 command strings; and

4 content data for updating the application program.

1 12. The method of claim 10 wherein identifying information to be updated
2 comprises:

3 receiving an update request from a user of the mobile device.

1 13. The method of claim 10 wherein identifying information to be updated
2 comprises:

3 receiving a computer generated request, wherein the computer generated
4 request is derived from a database comprising one or more auto-update requests.

1 14. The method of claim 13 wherein the one or more auto-update requests
2 comprises one or more days and times designated by a user of the mobile device.

1 15. The method of claim 11 wherein the content data pertains to at least one of
2 news, traffic, weather, movie, airline and stock information.

1 16. A method for updating an application program in a mobile device, the method
2 comprising:

3 receiving a short wireless message at the mobile device;

4 parsing the received message to determine whether a command string is
5 embedded in the received message; and

6 storing at least a portion of the command string if embedded in the
7 received message.

1 17. The method of claim 16 wherein the command string comprises:
2 a header portion identifying the received message as carrying a command
3 or data update; and
4 a data content portion pertaining to one of a command instruction or a data
5 field containing data for an application program.

1 18. The method of claim 16 wherein the short wireless message comprises one of
2 an SMS message, an EMS message, an MMS message, a Cell Broadcast message, a
3 USSD message, and a message sent through wireless Internet connection.

1 19. A short wireless message for carrying commands and data to and from a
2 mobile device, the short wireless message comprising:
3 a header portion identifying the command message as containing an
4 embedded command or data update; and
5 a data content portion containing at least one of instructions to be executed
6 by a receiving device processor and a data field containing data for use by an application
7 program.

1 20. The short wireless message of claim 19 wherein the command message
2 comprises one of an SMS message, an EMS message, an MMS message, a Cell
3 Broadcast message, a USSD message, and a message sent through a wireless Internet
4 connection.

1 21. A computer program product for use with a mobile device, the computer
2 program product including machine-readable code that, when executed by a processing
3 device, comprises code for:

4 parsing a received short wireless message to determine whether any
5 command strings exist; and
6 executing existing command strings for at least one of the following
7 operations: (i) downloading an application program, (ii) activating a stored application
8 program, and (iii) updating a database accessed by one or more application programs.

1 22. The computer program product of claim 21 wherein the short wireless
2 message comprises one of an SMS message, an EMS message, an MMS message, a Cell
3 Broadcast message, a USSD message, and a message sent through a wireless Internet
4 connection.

1 23. The computer program product of claim 22 further comprising code for:
2 composing a data request message relating to one of a data update request
3 or a processing request, the data request message for requesting information from a
4 remote server.

1 24. The computer program product of claim 23 wherein the data request message
2 is in one of SMS, EMS, MMS, Cell Broadcast, USSD formats.

1 25. The computer program product of claim 21 further comprising code for:
2 managing said one or more application programs.

1 26. A system for providing information to a mobile device, the system
2 comprising:
3 an apparatus operative to compose a wireless command message based on
4 information in a document, the command message for use by a computer software
5 application residing in a memory of the mobile device; and
6 a storage location accessible by the apparatus, the storage location
7 operative to store the document.

1 27. The system of claim 26 wherein the wireless command message comprises
2 one of an SMS message, an EMS message, an MMS message, a Cell Broadcast message,
3 a USSD message, and a message sent through a wireless Internet connection, and having
4 embedded therein, information for use by the computer software application residing on
5 the mobile device.

1 28. The system of claim 26 wherein the document comprises and eXtensible
2 Markup Language (XML) document.

1 29. The system of claim 26 wherein the apparatus comprises an application
2 server.

1 30. The system of claim 26 wherein the apparatus comprises a web server
2 including a short message transceiver application and XML parser software module.

1 31. The system of claim 27 wherein the computer software application comprises
2 an application manager program.

1 32. The system of claim 27 wherein the computer software application comprises
2 an application program.

1 33. The system of claim 27 further comprising a messaging center operative to
2 direct the wireless command message from the apparatus to the mobile device.

1 34. The system of claim 33 further comprising the mobile device, wherein the
2 application manager program is operative to extract one or more commands from the
3 wireless command message and execute the extracted commands.

1 35. A method for deploying application programs developed for use by a mobile
2 device, the application programs for providing a mobile user information and services,
3 the method comprising:

4 (i) facilitating a communications connection with a user having an
5 application program to be uploaded;

6 (ii) receiving registration and file information from the user;

7 (iii) recording the received registration and file information;

8 (iv) if the registration and file information is acceptable, then enabling
9 the user to upload the application program to a networked file storage device;

10 (v) if the registration and file information is not acceptable, requesting
11 the user to input the registration and file information again and return to (ii); and

12 (vi) if the application program was successfully uploaded, then
13 notifying the user of the same, else requesting the user to retry uploading the application
14 program and if so return to (iv).

1 36. The method of claim 35 wherein if the user does not retry uploading the
2 application program, then deleting the recorded registration and file information.

1 37. The method of claim 35 wherein the registration and file information is
2 recorded at a Service Location Server.

1 38. The method of claim 35 wherein the networked file storage device comprises
2 an FTP server.

1 39. A mobile device including one or more memory devices, the one or more
2 memory devices containing machine-readable code for execution by a processing unit
3 residing in the mobile device, the machine-readable code comprising:

4 at least one application program operative to provide information and services to a
5 user of the mobile device; and

6 an application manager program operative to manage the at least one application
 7 program and operative to parse incoming short wireless messages for commands and data
 8 pertaining to the at least one application program.

1 40. The mobile device of claim 39 wherein the one or more memory devices
 2 comprises a multimedia memory card (MMC).

1 41. The mobile device of claim 39 wherein the one or more memory devices
 2 comprises a flash read only memory (ROM) chipset.

1 42. A method of updating information for an application program residing in a
 2 memory of a mobile device, the method comprising:

- 3 retrieving update information for updating the application program;
- 4 composing a short wireless message including the update information; and
- 5 sending the short wireless message to the mobile device over a wireless

6 network using a transport protocol.

1 43. The method of claim 42 wherein the transport protocol comprises a wireless
 2 Internet protocol.

1 44. The method of claim 42 wherein before retrieving update information, the
 2 method further comprises:

- 3 receiving a data-update request from the mobile device.

1 45. The method of claim 44 wherein receiving the data-update request comprises:
 2 completing a wireless Internet connection with the mobile device; and
 3 receiving the data-update request using the wireless Internet connection.

1 46. The method of claim 42 wherein retrieving the update information comprises:
 2 searching a server and identifying a document including the update
 3 information.

1 47. The method of claim 46 wherein the document comprises an XML document.

1 48. The method of claim 42 wherein composing the short wireless message
 2 comprises:

- 3 parsing a document; and
- 4 structuring the short wireless message based on the parsed document.

1 49. The method of claim 42 wherein the wireless network comprises a packet-
 2 switched network and one or more gateways.

1 50. The method of claim 42 wherein sending the short wireless message
2 comprises:
3 sending the short wireless message over the wireless network using an
4 HTTP transport protocol.

1 51. The method of claim 42 wherein sending the short wireless message
2 comprises:
3 sending the short wireless message over the wireless network using an
4 FTP transport protocol.

1 52. The method of claim 42 wherein sending the short wireless message
2 comprises:
3 sending the short wireless message over the wireless network using a
4 TCP/IP protocol .

1 53. The method of claim 43 wherein retrieving update information is initiated by
2 a computer generated auto-update request.